

Scott M. Smouse  
Product Manager, International Program  
Office of Product Management for  
Fuels and Specialty Markets

## The Americas Choosing Energy Options



To strengthen global environmental stewardship and strategic U.S. hemispheric alliances, the Federal Energy Technology Center (FETC) is promoting clean energy technologies within the Western Hemisphere.

FETC is developing a project with the Guatemala/Central America Program (G/CAP) Office of the U.S. Agency of International Development (USAID) to demonstrate the efficacy of using landfill gas to generate electricity while controlling greenhouse gas (GHG) emissions.

Guatemala's total installed power capacity is 1,325 megawatts (MW), but only about 930 MW are operable. About 500 MW of new capacity will be needed over the next 10 years. FETC and USAID have met with officials from the Municipality of Guatemala City to explore utilizing landfill gas from El Trebol landfill to generate electricity. A preliminary estimate indicates a generation potential of 25 to 50 MW from the landfill, which is located in the center of the city. Although conventional combustion equipment may be used in the project, FETC will investigate using the landfill gas in highly efficient fuel cells or gas turbines developed under FETC-managed programs.

### Greenhouse Gas Reductions

Composed primarily of methane and carbon dioxide, landfill gas contributes directly to potential global warming. In particular, methane has about 27 times the global warming effect of carbon dioxide, but receives less attention because its global emissions are much lower. Using the methane to generate power will minimize the environmental impact of the landfill emissions.

FETC is working with the USAID G/CAP office to conduct a feasibility study for a commercial power generation project at the landfill—that will generate certified GHG credits. FETC will recruit a U.S. company to enter into a joint project with the Municipality of Guatemala City.

Such cooperative efforts between countries to reduce net GHG emissions—called *activities implemented jointly* (AIJ)—hold significant potential for combating the threat of global warming and promoting sustainable development. AIJ is recognized under the U.N. Framework Convention on Climate Change, and has been a key element in the administration's strategy for mitigating global warming.



The project is being timed to coincide with the privatization of El Trebol landfill, which is owned and operated by the Municipality of Guatemala City. If successful, this waste-to-energy project will be replicated by FETC and USAID throughout the Latin American and Caribbean (LAC) Region where a number of other large landfills exist. In addition to reducing the threat of global warming, such efforts will spur U.S. technology exports to the region.

### Promoting Clean Energy Options

Efficient power-generation systems based on fossil fuels and renewable energy sources are vital to diversifying, and thereby securing, a stable fuel mix in the Americas as well as minimizing the potential of global warming. A few years ago, FETC and other DOE Fossil Energy staff sat down with energy experts from a number of LAC countries as part of a Clean Energy Options (CEO) Working Group. The group drafted a *Clean Energy Technologies for the Americas Report*,

released in December 1996. (The report is available on the Internet at <http://146.138.65.100/abstracts/96hemiab.htm>.)

The study—conceived at the 1995 Hemispheric Energy Symposium—represents 18 months of joint efforts by energy specialists from the U.S., Canada, and several democratic Latin American nations. The report describes current and developing clean-energy technologies that are on fast-track development paths in various countries in the Western Hemisphere. And the report also highlights each nation's contemporary energy mix and the prospects of diversifying its electric power-production facilities.

While the Guatemalan landfill-gas project was not one of the 12 fast-track projects identified in the report, it typifies some of the clean-energy options that various countries can pursue. The CEO Working Group is discussing an update of the fast-track project report, which will include other technology options such as landfill-gas power generation.

The CEO Working Group also developed an electronic database of the current power-generation base in the Hemisphere and projections to 2010. Government officials from most of the 34 democratic nations in the Hemisphere provided data on their countries to ensure the database's accuracy.


The database, completed late last year, contains vital information on a nation's energy profile: the fuels it is using and has used in the past; the type, size, and number of power plants in operation; and current and projected electric power demand. Based on future energy scenarios, the database can be used to project energy prices, energy

supply and demand, and the impact pollution has on the environment.

This is basically an analytical tool, explains Scott Smouse, FETC's International Program Product Manager. It allows leaders of a country to quickly look at the overall impact their decisions could have on the local environment and the energy balance. The database provides information on clean-energy options, including fossil and renewable technologies, to a corner of the world where environmental regulations and control technologies are just now being put into place.

### The Future?

FETC continues to participate in the CEO Working Group to promote and demonstrate clean, efficient U.S. energy technologies throughout the Hemisphere. In addition, FETC's international team is pursuing other collaborative clean-energy activities around the world.

FETC's international efforts will help bolster trade and enhance energy and environmental security. And there is little doubt that the new, clean-energy technologies in which the U.S. has invested will figure prominently. 

### FETC Point of Contact:

**Scott M. Smouse**

Product Manager,  
International Program

Office of Product Management for  
Fuels and Specialty Markets

Phone: 304/285-5725

E-mail: [ssmous@fetc.doe.gov](mailto:ssmous@fetc.doe.gov)

